

**RF POWER DEVICE WITH
ON-CHIP DIGITAL CONTROL AND OPTICAL INTERFACE**

Abstract of the Disclosure

RF power device module (500) having an RF power device chip (206) which integrates an RF power device (208) with at least one of DC detector circuits (201, 202), RF detector circuits (203, 204), and thermal detector circuit (235) which cooperate with optical emitter/detector components (213) that supports a bi-directional optical link (210) made through free space with diagnostic processing and control circuits implemented on a separate chip (214) mounted within the same enclosure (205). The bi-directional optical link (210) enables interpretation of detection signals (227) received from the RF power device chip (206) and the feed back of default or other management and control signals (229) sent back to the RF power device chip (206) in response to the detected and analyzed conditions. The RF power device module (500) can be used in RF power transistors, such used in a base station, or mobile or portable transmitters, used in telecommunications, or in RF power amplifiers and instrumentation amplifiers in general.